



Air Quality Permit

Statement of Basis

**In Response to a Contested Case Petition
Filed August 12, 2003**

And

**Permit Modification
Submitted October 28, 2004**

April 19, 2005

Tier II Operating Permit No. T2-030055

C. Wright Construction, Inc., Meridian, Idaho

Facility ID No. 001-00019

Prepared by:

Bill Rogers, Regional Permit Program Coordinator
Air Quality Division

FINAL

Table of Contents

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE	3
1. PURPOSE	4
2. FACILITY DESCRIPTION	4
3. PROJECT DESCRIPTION	4
4. FACILITY / AREA CLASSIFICATION	5
5. APPLICATION SCOPE	5
6. PERMIT ANALYSIS.....	6
7. PERMIT CONDITIONS.....	7
8. FEES.....	7
9. PUBLIC COMMENT	8
10. RECOMMENDATION.....	8
APPENDIX A – RESPONSE TO CONTESTED CASE PETITION	
APPENDIX B – AIRS INFORMATION	
APPENDIX C – OCTOBER 28, 2004 PERMIT APPLICATION	
APPENDIX D – DECEMBER 9, 2004 APPLICATION ADDENDUM	
APPENDIX E – DECEMBER 21, 2004 APPLICATION ADDENDUM	
APPENDIX F – DEQ MODELING MEMORANDUM	

Acronyms, Units, and Chemical Nomenclature

AIRS	Aromatic Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
C. Wright	C. Wright Const., Inc.
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb	pound
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NOx	oxides of nitrogen
NSPS	New Source Performance Standards
PAHs	polycyclic aromatic hydrocarbons
PM₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
SIC	Standard Industrial Classification
SM	synthetic minor
SO₂	sulfur dioxide
T/yr	tons per any consecutive 12-month period
UTM	Universal Transverse Mercator
VOC	volatile organic compounds

1. PURPOSE

- 1.1 The purpose for this memorandum is to describe the resolution of the contested case proceedings filed in accordance with IDAPA 58.01.23 et seq, Rules of Administrative Procedure Before the Board of Environmental Quality.

On August 12, 2003, C. Wright Construction, Inc. (C. Wright), through its attorney Stoel Rives LLP, filed contested case proceedings with the Board of Environmental Quality (Board) regarding Tier II Operating Permit No. T2-000033, issued July 8, 2003 (T2-000033). Filing of the petition was timely. The petition identifies three areas of T2-000033 that C. Wright requests review of from the Board: 1) the new conditions and requirements in T2-000033 were not subject to review and public comment; 2) the new conditions and requirements in T2-000033 are not authorized under the Idaho Air Rules; and 3) the new conditions and requirements in T2-000033 are unreasonable.

DEQ, C. Wright, and Stoel Rives met several times and negotiated a final resolution for the appealed permit conditions. The appealed permit conditions and DEQs responses are provided in Appendix A. A draft and proposed permit were developed based on the negotiations. The proposed permit was provided for public comment from February 17 through March 18, 2005. No comments were received. C. Wright formally withdrew the contested case petition on April 1, 2005.

- 1.2 The purpose for this memorandum is to also satisfy the requirements of IDAPA 58.01.01.400 through 410, Rules for the Control of Air Pollution in Idaho, for issuing Tier II operating permits.

On October 28, 2004, C. Wright submitted a permit application to modify the hot-mix asphalt production limit contained in T2-000033. This memorandum describes the modification.

2. FACILITY DESCRIPTION

C. Wright mines and processes river rock into aggregate used to produce hot-mix asphalt. The asphalt is produced in a drum-mix asphalt plant. With this modification, asphalt production is increased by 30,000 tons per year. The facility production limit is now 80,000 tons per any consecutive 12-month period.

C. Wright sells some of the processed aggregate to contractors and the general public. Tier II Operating Permit No. T2-000033 contains limits for the mined and processed aggregate. This permit modification does not affect those limits.

3. PROJECT DESCRIPTION

Permit Modification – Hot-mix Asphalt Increase

On October 28, 2004, C. Wright submitted a Tier II modification application to increase annual hot-mix asphalt production due to the increased growth in southern Idaho. C. Wright proposes to increase asphalt production from 50,000 tons per year to 80,000 tons per year; a 30,000 ton per year increase. Short-term production is not increasing, only annual production is increasing. Subsequently, only annual emissions increase. The increase in PM₁₀ associated with the production increase is approximately 0.68 tons per year.

4. FACILITY / AREA CLASSIFICATION

C. Wright is classified as a synthetic minor facility because its potential to emit is limited below all major source thresholds. The facility is not a designated facility as defined by IDAPA 58.01.01.006.27. The facility is subject to NSPS requirements in accordance with 40 CFR 60, Subpart OOO. The facility is not subject to any NESHAP or MACT requirements. The SIC code defining the facility is 1142, and the AIRS facility classification is "SM".

The facility is located within AQCR 64 and UTM zone 11. The facility is located in Northern Ada County which is designated as attainment for PM₁₀ and CO and unclassifiable for all other regulated criteria air pollutants.

The AIRS information provided in Appendix B provides the classification for each regulated air pollutant at C. Wright. This required information is entered into the EPA AIRS database.

5. APPLICATION SCOPE

Permit Modification

C. Wright submitted a permit application to modify its hot-mix asphalt facility. Specifically, C. Wright proposes to increase its annual hot-mix asphalt production by 30,000 tons per year. The existing permit limits production to 50,000 tons per year. With the modification, production will be limited to 80,000 tons per year. The associated PM₁₀ emissions increase is approximately 0.68 tons per year. Hourly production will not increase. The application requesting the modification is included as Appendix C.

C. Wright noted in its application that its source of ready-to-use aggregate (plant mix) is no longer available. Historically, C. Wright would mine this material and then transport it from the nearby pit to the location of the asphalt plant. Because the plant mix is no longer available, the fugitive emissions associated with it (vehicle traffic and material handling) will no longer be generated. C. Wright estimates the associated decrease in fugitive PM₁₀ emissions is approximately 3.55 tons per year. The submittal describing the emissions reduction is provided as Appendix D.

In summary, the increase in PM₁₀ emissions from the modification is offset by the reduction in fugitive PM₁₀ emissions due to the inability to obtain plant mix. The change in PM₁₀ emissions from this proposed project is a decrease of approximately 2.87 tons per year (0.68 T/yr – 3.55 T/yr = -2.87 T/yr).

5.1 Application Chronology

August 12, 2003	C. Wright, through its attorney Stoel Rives, appeals Tier II Operating Permit No. T2-00003, issued July 8, 2003
October 28, 2004	C. Wright, through its attorney Stoel Rives, submitted a permit application to modify the facility's hot-mix asphalt production
December 9, 2004	C. Wright submitted an analysis describing the decrease in fugitive emissions due to the loss of availability of plant mix
December 21, 2004	C. Wright submitted additional modeling for the modification
February 4, 2005	DEQs proposed Tier II Operating Permit No. T2-030055 is provided for public comment
February 17 through March 18, 2005	DEQ provides proposed permit for public comment
April 1, 2005	C. Wright, through its attorney Stoel Rives, withdraws contested case

6. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this modified Tier II operating permit.

6.1 Emissions Inventory

An emissions inventory was provided by Geomatrix, C. Wright's consultant. The emissions inventory was reviewed by DEQ and is acceptable. Table 6.1 summarizes the emissions inventory. The submittal provided by Geomatrix is provided as Appendix E.

Table 6.1 HOT-MIX ASPHALT PLANT EMISSIONS INVENTORY

Pollutant	Emission Factor (lb pollutant/T HMA production)	Existing Emissions Inventory (50,000 T/yr limit) (T/yr)	Proposed Emissions Inventory (80,000 T/yr limit) (T/yr)	Emissions Increase (T/yr)
PM ₁₀	0.0454	1.135	1.811	0.676
NOx	0.026	0.650	1.040	0.39
SO ₂	0.0034	0.085	0.136	0.051
Arsine	5.60E-07	1.40E-05	2.25E-05	8.50E-06
Benzene	0.00039	9.75E-03	1.56E-02	5.85E-03
Chromium VI	4.50E-07	1.15E-05	1.80E-05	6.5E-06
Formaldehyde	0.0031	7.75E-02	0.124	4.65E-02
Nickel	6.30E-05	1.57E-03	2.52E-03	9.5E-04
PAHs	5.48E-07	1.35E-05	2.2E-05	8.5E-06

Note: Emission factor reference provided in Appendix E

6.2 Modeling

Modeling for the proposed modification was provided by Geomatrix. DEQ has reviewed the modeling and has determined that the emissions increase will not cause or contribute to a violation of any applicable air quality standard. DEQ's modeling memorandum is presented as Appendix F.

6.3 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this modified Tier II operating permit.

IDAPA 58.01.01.203 Permit Requirements for New and Modified Stationary Sources

This permitting action is a modification of Tier II Operating Permit No. T2-000033, issued July 8, 2003. In accordance with the Tier II operating permit General Conditions, modifications are subject to DEQ review in accordance with IDAPA 58.01.01.200 et. seq. The proposed modification will comply with all applicable emissions standards and will not cause or contribute to violation of any applicable air quality standard as required by IDAPA 58.01.01.203.01, 02 and 03.

IDAPA 58.01.01.404.02.b Procedures for Issuing Permits

DEQ's proposed action was made available for public comment.

IDAPA 58.01.01.407 Tier II Operating Permit Processing Fee

The final permit is subject to a processing fee of \$2,500 because the permitted emissions are between one and 10 tons per year, excluding fugitive emissions.

40 CFR 60 Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants

DEQs analysis of C. Wright's facility indicates the skimmer screen deck (1986 project) and the stand-alone screen deck (1997 project) are affected facilities and are subject to the opacity standard in 40 CFR 60.672(b).

7. PERMIT CONDITIONS

This section lists only those permit conditions that have changed or have been deleted as a result of this permit modification. All other permit conditions remain unchanged. Permit condition related to the modified permit are identified as Modified Permit Conditions. Permit conditions related to the existing permit are identified as Existing Permit Conditions.

- 7.1 Existing Permit Condition 3.3 limits PM₁₀ emissions to 1.14 tons per year.
- 7.2 Modified Permit Condition 3.3 limits PM₁₀ emissions to 4.86 pounds per hour and 1.80 tons per year.
- 7.3 Existing Permit Condition 3.4 limits hot-mix asphalt production to 50,000 tons per year.
- 7.4 Modified Permit Condition 3.4 limits hot-mix asphalt production to 80,000 tons per year.
- 7.5 Existing Permit Conditions 3.6 and 3.7 require a stack thermometer be installed to measure the stack temperature and require that the stack temperature not exceed 155°F.

DEQ has deleted Existing Permit Conditions 3.6 and 3.7 because they serve no purpose in protecting ambient air quality. The permit was renumbered accordingly.

- 7.6 Modified Permit Condition 3.8 requires that the facility conduct a performance test at least once during the permit term to measure PM₁₀ emissions from the hot-mix asphalt plant exhaust stack to demonstrate compliance with the short-term PM₁₀ emissions limit contained in Permit Condition 3.3. Tier II Operating Permit No. T2-000033, issued July 8, 2003, did not contain a performance test requirement; therefore, compliance with the PM₁₀ emissions rate limit could be demonstrated.
- 7.7 Existing Permit Condition 3.10.3 was deleted. It required that the permittee monitor and record the stack temperature. Because stack temperature is no longer a requirement, this condition no longer applies.
- 7.8 Modified Permit Condition 3.10 suggest that the permittee submit a performance test protocol prior to conducting any performance testing.
- 7.9 Modified Permit Condition 3.11 requires that the permittee submit a written report of the performance test results to DEQ.
- 7.10 Existing Table 5.1 limits PM₁₀ emissions to 1.14 tons per year.
- 7.11 Modified Table 5.1 limits PM₁₀ emission to 1.80 tons per year.

Note: Changes to permit conditions related to the contested case are discussed in Appendix A.

8. FEES

The final permit is subject to a processing fee of \$2,500 because the permitted emissions are between one and 10 tons per year, excluding fugitive emissions.

9. PUBLIC COMMENT

In accordance with IDAPA 58.01.01.404.02.b, a public comment period was provided. No comments were received.

10. RECOMMENDATION

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue final Tier II Operating Permit No. T2-030055 to C.Wright Construction Inc. The project does not involve PSD permit requirements.

BR/sd Permit No. T2-030055

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Appendix A

Response to Contested Case Petition

PETITION AND RESPONSE

This appendix contains the conditions appealed by C. Wright and DEQs responses. As stated earlier in this document, on August 12, 2003, C. Wright Construction, Inc. (C. Wright), through its attorney Stoel Rives LLP, filed contested case proceedings with the Board of Environmental Quality (Board) regarding Tier II Operating Permit No. T2-000033, issued July 8, 2003 (T2-000033). Filing of the petition was timely. The petition identifies three areas of the T2-000033 that C. Wright requests review of from the Board: 1) the new conditions and requirements in T2-000033 were not subject to review and public comment; 2) the new conditions and requirements in T2-000033 are not authorized under the Idaho Air Rules; and 3) the new conditions and requirements in T2-000033 are unreasonable.

DEQ, C. Wright, and Stoel Rives met several times and negotiated a final resolution for the appealed permit conditions (see below). A draft permit and a proposed permit were developed based on the negotiated resolutions. The proposed permit was provided for public comment from February 17 through March 18, 2005, and no comments were received. C. Wright formally withdrew the contested case petition on April 1, 2005.

Because T2-000033 was the appealed permit, DEQs responses reference T2-000033. However, the permit developed as a result of this contested case petition is T2-030055. This permit contains the permit condition changes as discussed in DEQs responses as contained below.

1. The new conditions and requirements in T2-000033 were not subject to review and public comment.

The draft Tier II permit that was issued for public comment November 9, 2001, contained 12 facility-specific conditions. T2-000033 contains 31 facility-specific conditions. As a result, T2-000033 contains many new terms and conditions that were not part of the draft permit and were not issued for, or subjected to, public review and comment. C. Wright had no opportunity to review or comment on the new conditions. The petition specifically identifies Permit Conditions 2.2, 2.3, 2.4, 2.6, 2.7, 2.9, 2.14, 3.5, and 3.10.2.

Response – Permit Conditions 2.2, 2.3, and 2.4

T2-000033 does contain additional conditions, but only to the extent that T2-000033 is consistent with permits issued to other facilities during the same time period and today. The additional conditions have been added to help make compliance with an underlying requirement easier to determine by the facility, DEQ, and the general public. For example, the November 9, 2001 draft permit contained the condition to reasonably control fugitive dust, but did not contain any other term or condition by which compliance could be determined.

To be consistent with current permitting practices, T2-000033 contains the additional permit conditions whereby compliance with an underlying requirement can be more easily determined. To illustrate this point, the additional permit conditions that are used to reasonably assure compliance with the Rules for the Control of Fugitive Dust (Permit Condition 2.1), require that C. Wright monitor and maintain records of the frequency and methods used to control fugitive emissions (Permit Condition 2.2); maintain records of all fugitive dust complaints and take necessary corrective action in response to all valid complaints (Permit Condition 2.3); and conduct monthly facility-wide inspections of potential sources of fugitive dust to assure the control methods employed are working, and maintain records of each inspection (Permit Condition 2.4). Demonstrating compliance with these permit conditions reasonably assures compliance with the underlying requirement (Permit Condition 2.1 and IDAPA 58.01.01.650-651). Note, DEQ changed the monitoring and recordkeeping frequency from weekly to monthly. This change is consistent with permits issued to other facilities.

Response – Permit Conditions 2.6 and 2.7

The November 9, 2001, draft permit did not contain the requirement specifically regulating odors (IDAPA 58.01.01.776, Rules for Control of Odors). This rule, however, is part of Idaho's SIP for air pollution control and applies regardless whether the rule is incorporated into a permit or not. The odor rule was purposely incorporated into T2-000033 (Permit Condition 2.6) because the facility is a potential source of odors.

To reasonably assure compliance with Permit Condition 2.6 and IDAPA 58.01.01.776, Permit Condition 2.7 requires that C. Wright record all odor complaints received, and for those complaints that are truly valid, take corrective action and record what corrective action was taken. No corrective action is a valid response, if upon inspection, odors are no worse than during normal operations.

Response – Permit Condition 2.9

As with the November 9, 2001 draft permit, T2-000033 incorporates the visible emissions rule (IDAPA 58.01.01.625) as an applicable requirement. The draft permit however, does not contain any terms or conditions by which compliance with the rule can be determined. Much in the same manner by which compliance is determined for fugitive dust, T2-000033 requires that C. Wright conduct monthly facility-wide inspections of potential sources of visible emissions. Each inspection is to consist of a see/no see observation. If visible emissions are present, C. Wright is required to take appropriate corrective action, or conduct a Method 9 opacity test. No corrective action is a valid response, if upon inspection, visible emissions do not exceed any visible emissions standard set forth in the permit. Again, weekly monitoring and recordkeeping was changed to monthly.

Response – Permit Condition 2.14

C. Wright requested that Permit Condition 2.14 in T2-000033 be deleted because the condition is confusing. Specifically, the permit condition requires that C. Wright monitor and maintain records of any sampling or source testing conducted. T2-000033, however, does not require sampling or source testing, hence, the source of confusion. In order to alleviate the confusion, DEQ has tailored Permit Condition 2.14 specifically for C. Wright's operations. The following text shows exactly how the permit condition has been changed. Text that was deleted is struck through. Text that was added is underlined. None of the changes made have adversely affected the integrity of the original permit condition. Conversely, by clarifying the permit condition for C. Wright, the requirement is clear and its understood exactly what DEQ requires in terms of monitoring and recordkeeping.

Monitoring and Recordkeeping

- 2.14 The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this operating permit. Records of monitoring information shall include, but not be limited to, the following: (a) the date, place, and times of ~~sampling or~~ measurements; ~~(b) the date analyses were performed;~~ ~~(c) the company or entity that performed the analyses;~~ ~~(d) the analytical techniques or methods used;~~ ~~(e) the results of such analyses;~~ and ~~(f) (b) the operating conditions existing at the time of sampling or measurement.~~ All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring ~~sample, measurement, report, or application.~~ Supporting information includes, but is not limited to, all calibration and maintenance records, ~~all original strip chart recordings for continuous monitoring instrumentation;~~ and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to ~~Department~~ DEQ representatives upon request.

Response – Permit Condition 3.5

Permit Condition 3.5 in the November 9, 2001 draft permit specifies that the hot-mix asphalt plant shall only operate between the hours of 6:00 a.m. and 6:00 p.m. This operating schedule was suggested and provided by C. Wright as a means to demonstrate compliance with the 24-hour PM₁₀ NAAQS. C. Wright now contends the schedule is inflexible because at times they need to begin operating earlier in the day than 6:00 a.m. to remain competitive. Because 12 hours of operation drives the permit condition rather than a specific block of time, DEQ has changed Permit Condition 3.5 to state that the hot-mix asphalt plant shall operate no more than 12-hours per any calendar day.

Response – Permit Condition 3.10.2

Permit Condition 3.10.2 in T2-000033 is the monitoring and recordkeeping requirement for Permit Condition 3.5. Because Permit Condition 3.5 no longer limits operations from 6:00 a.m. to 6:00 p.m., the petition to change Permit Condition 3.10.2 no longer applies. Permit Condition 3.10.2 in the proposed permit requires that C. Wright monitor and record the startup and shutdown of the hot-mix asphalt plant each day the plant operates to demonstrate that it operates no more than 12 hours per day.

Response – Petition Item 3.1

The DEQ agrees that Permit Conditions 2.2, 2.3, 2.4, 2.6, 2.7, 2.9, 3.5, and 3.10.2 in T2-000033 were not made available to C. Wright or to the public prior to issuance of T2-000033 on July 8, 2003. The DEQ has taken C. Wright's petition into account and has made changes appropriate and consistent with current permitting practices and as described in this statement of basis. The DEQ developed a proposed permit and provided it for public comment. No comments were submitted.

2. ***The new conditions and requirements in the T2-000033 are not authorized under the Idaho Air Rules.***

IDAPA 58.01.01.403 allows DEQ to require or revise a Tier II operating permit for any stationary source or facility whenever DEQ determines: that emission rate reductions are necessary to attain or maintain any ambient air quality standard or applicable PSD increment; or specific emission standards or requirements on operation or maintenance are necessary to ensure compliance with any applicable emission standard or rule.

3. ***The new conditions and requirements in the T2-000033 are unreasonable.***

The new conditions and requirements in T2-000033 are consistent with conditions and requirements in permits issued for other similar-type sources and facilities. Because DEQ is not requiring anything more of C. Wright than any other facility, the new conditions and requirements are fair and reasonable. It is in C. Wright's best interest to accept and comply with the monitoring and recordkeeping requirements because they specify how compliance is to be determined. Without the monitoring and recordkeeping requirements, compliance is difficult to assess and may leave C. Wright vulnerable to compliance and/or enforcement action.

4. ***Additional clarifications to T2-000033***

4.1 **40 CFR 60, SUBPART OOO Applicability**

- 1) Permit Conditions 4.5 and 4.6 in T2-000033 set forth NSPS opacity standards for crushers; transfer points on belt conveyors; each grinding mill, screening operation, bucket elevator, belt conveyor bagging operation, storage bin, enclosed truck, or rail car loading. Both permit conditions leave identifying those NSPS affected facilities up to C. Wright as well as the

corresponding visible emissions standard. So there is no misunderstanding, C. Wright requested that DEQ identify the NSPS affected facilities and include the appropriate visible emissions standard. According to C. Wright's permit application and documentation contained in C. Wright's source file located at DEQ, the only affected facilities subject to the opacity standard contained in 40 CFR 60.672(b), are an Eljay, 5' x 16' screen deck (identified by C. Wright as the "skimmer screen"), manufactured in 1986, and an Eljay, Model FSG 5163, stand-alone screen deck, manufactured in 1997. All other crushing equipment was manufactured prior to August 1, 1985, the effective date of the NSPS.

- 2) C. Wright also questioned whether the NSPS affected screen decks are subject to both the state standard (20% opacity for no more than 3 minutes in any 60-minute period) and the NSPS standard (no individual readings greater than 10%). Because the NSPS is more stringent than the state standard, compliance with the NSPS standard inherently demonstrates compliance with the state standard.

4.2 Visible Emissions Crossing The Facility Boundary

C. Wright wanted clarification concerning Permit Condition 2.5 which requires that no visible emissions be seen crossing the facility boundary. C. Wright contends that atmospheric conditions may cause dust not generated by C. Wright to blow across their facility boundary, thus possibly causing them to be called out of compliance. The DEQ has added the following underlined text to Permit Condition 2.5 to clarify that only those emissions generated onsite are the emissions subject to the visible emissions requirement.

- 2.5 Fugitive emissions generated onsite shall not be observed leaving the facility boundary for a period or periods aggregating more than three minutes in any 60-minute period. Visible emissions shall be determined by EPA Method 22, as described in 40 CFR 60, Appendix A, or a DEQ-approved alternative method.

Appendix B

AIRS Information

AIRS INFORMATION

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

AIR PROGRAM	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION
POLLUTANT							A – Attainment U – Unclassifiable N – Nonattainment
SO ₂	B						U
NO _x	B						U
CO	B						maintenance area
PM ₁₀	SM						maintenance area
PT (Particulate)	B						U
VOC	B						U
THAP (Total HAPs)	B						
			APPLICABLE SUBPART				
			000				

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions are below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Note: This facility is not an SM80 facility.

Appendix C

October 28, 2004 Permit Application

**(Document Titled: Asphalt Production Limit on C. Wright Construction, Inc.
Tier II Operating Permit No. T2-000033)**



RECEIVED

OCT 28 2004

Department of Environmental Quality
State Air Program

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October 27, 2004

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Martin Bauer
Administrator
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Idaho Department of Environmental Quality
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**Re: Asphalt Production Limit on C. Wright Construction, Inc.
Tier II Operating Permit No. T2-000033**

Dear Marty:

C. Wright Construction, Inc. ("Wright") was issued a Tier II operating permit to support the North Ada County PM10 Maintenance Plan. Although acceptable at the time the permit was issued, specific Tier II permit conditions are unreasonably restricting Wright's ability to utilize its asphalt plant this year. Therefore, Wright requests revision of Sections 3.3 and 3.4 of its Tier II operating permit to increase the annual PM 10 emission limit and annual production limit on its asphalt plant. Wright's engineering consultant, MFG, Inc. ("MFG"), prepared an analysis demonstrating that revisions to the Tier II permit will not adversely impact ambient air quality. These revisions are urgently needed by Wright to enable this small business to fill current market demand.

Wright is currently permitted to emit 1.14 tons of PM10 per year from the plant. This limit is tied to an annual asphalt production limit of 50,000 t/yr. Given an unexpected market demand this year, the 50,000 t/yr limit is unreasonably constraining Wright and if left unchanged, the limit could have a severe impact on Wright's ability to compete and operate for the remainder of this year and into 2005. Wright requests an increase in the annual emission limit to 1.80 t/yr and the annual production limit to 80,000 t/yr.

In 2001, IDEQ proposed a draft Tier II permit for Wright that included a 43,500 t/yr production limit on the asphalt plant. In comments submitted to IDEQ, Wright requested that IDEQ increase the production limit to 50,000 t/yr to allow it room over its historic asphalt production of 43,500 t/yr. At that time, Wright believed the 50,000 t/yr limit would provide it sufficient flexibility to operate and grow. Since 2003, however, Wright has seen demand for its asphalt grow at an unanticipated rate. Constraining production in order to comply with the existing



Martin Bauer
October 27, 2004
Page 2

limits for the remainder of October, November and December will result in lost profit, lost opportunity and possibly loss of jobs at Wright. Wright requests the increase in its production rate as soon as possible to remain competitive and to protect its business interests. MFG's work demonstrates that even at the increased levels of production and emissions the Maintenance Plan is supported.

Increasing the asphalt production rate to 80,000 t/yr will not adversely impact Idaho's compliance with the PM10 NAAQS or the Maintenance Plan because Wright is limited to operating the asphalt plant to 12 hours each day. Accordingly, there will be no change in its short-term impacts, its daily production level, or its hourly emissions rate. The revision will allow Wright to operate more days annually and extend its production season. According to modeling performed by MFG, increasing the production limit and annual emission limit will not cause a violation of the annual PM10 NAAQS. MFG's analysis is attached for your review.

A pending Tier II permit was scheduled to go to public comment this fall. Wright orally requested that the process consider this change. Failure to enable these changes promptly will result in economic loss for Wright.

Wright requests an opportunity to meet with you as soon as possible to discuss an approach to address this situation. Please contact me regarding your availability to meet on November 1 or 2.

Very truly yours,

Christopher Pooser

Enclosure




consulting
scientists and
engineers

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RECEIVED

OCT 28 2004

Department of Environmental Quality
State Air Program

MEMORANDUM

To: Tim Wright, C. Wright Construction
CC: Christopher Pooser and Krista McIntyre, Stoel Rives
From: Sean Williams
Date: October 26, 2004

Subject: Modeling Analysis associated with Increased Production at the Meridian Facility

Based on conversations with Christopher Pooser of Stoel Rives, it is our understanding that C. Wright Construction (Wright) proposes to increase the Meridian facility's annual hot mix asphalt (HMA) production rate. The facility's current Tier II Operating Permit limits both the rotary drum mix asphalt plant's HMA production and its associated PM₁₀ emissions. On an annual basis, the Meridian facility is currently allowed to produce 50,000 tons of HMA and to emit 1.14 tons of PM₁₀ from the asphalt plant's wet scrubber stack.

Wright proposes to increase the facility's allowable HMA production rate to 80,000 tons per year. Due to physical limitations the facility's maximum hourly production rate (106 tons of HMA) cannot increase, so the facility would achieve the increased production rate by operating additional hours per year. Accordingly, the increased HMA production rate would affect only the wet scrubber's annual PM₁₀ emission limit. Based on the facility's proposed production rate and an AP-42 emission factor, the wet scrubber would emit 1.8 tons of PM₁₀ per year.

Using this information, MFG performed a dispersion modeling analysis to determine the ambient air quality impacts associated with Wright's proposed production rate. Because the proposed production increase would not affect the facility's short-term emission rates, we examined only the annual-average impacts associated with the proposed production rate. As with DEQ's 2002 analysis of this facility, we focused exclusively on PM₁₀.

EPA's *Guideline on Air Quality Models*, (40 CFR Part 51, Appendix W) recommends ISCST3 for evaluating air quality impacts from industrial facilities such as asphalt plants. We used the most recent version of ISCST3 (Version 02035) and applied the model with the default options for rural conditions. As DEQ did in a 2002 modeling assessment of this facility, we employed one year of meteorological data from the Boise Airport (calendar year 1987) and we used the same facility layout DEQ used in their analysis. Although we followed several aspects of DEQ's 2002 modeling of this facility, we updated several parts of the study:

- PM₁₀ Emission rate. We calculated an annualized emission rate based on the proposed production rate (80,000 tons HMA per year), an AP-42 emission factor from Section 11.1, Hot Mix Asphalt Plants (0.045 pounds PM per ton of HMA produced), and the

facility's maximum hours of operation (12 hours per day as established in the facility's existing Tier II Operating Permit, 365 days per year = 4,380 hours per year). Accordingly, we used 0.8219 pounds per hour (0.1036 grams per second) as the annualized emission rate in the modeling analysis.

- Stack base elevation. MFG used a stack base elevation of 2,598 feet (792 meters) and receptor elevations obtained from Digital Elevation Model data from the USGS.
- Receptor network. We used a three tiered receptor grid that included fenceline receptors along the facility's property line at 25 meter spacing, a two-kilometer by two-kilometer fine grid centered on the asphalt plant with 50 meter spacing, and a ten-kilometer by ten-kilometer coarse grid, also centered on the asphalt plant, with 250 meter spacing. Figure 1 displays the receptor network used in the analysis.
- Stack exit temperature. Based on information from the facility, MFG used 154 degrees F (341 degrees K), while DEQ used 150 degrees F (338.7 degrees K).
- Stack exit velocity. Based on information from the facility, MFG used 68 feet per second (20.7 meters per second), while DEQ used 50.9 feet per second (15.5 meters per second).
- Stack diameter. MFG calculated the effective diameter of the facility's rectangular stack. This stack, which is 24 inches by 27 inches, has an effective stack diameter of 2.39 feet (0.7296 meters). DEQ used 2 feet (0.61 meters) in their analysis.

(Note: the combination of the last two factors results in a difference in flow rate from MFG's value of 18,360 ACFM versus the DEQ value of 9,590 ACFM.)

In addition to limiting the facility's HMA production, the Meridian facility's Tier II Operating Permit also limits the facility to 12 hours of operation per day. Accordingly, we limited the facility to 12 hours of operation per day in the modeling analysis.

Table 1 presents the results of the dispersion modeling analysis. As displayed in Table 1, increasing the facility's annual production rate will not cause a violation of the PM₁₀ National Ambient Air Quality Standards. As stated previously, we did not address 24-hour average PM₁₀ concentrations because the proposed production rate increase will not affect the facility's short-term emission rates. The production rate increase would affect only the facility's annual average impacts.

Table 1. PM₁₀ Modeling Results.					
Pollutant	Averaging Period	Maximum Predicted Concentration (µg/m³)	Background Concentration (µg/m³)^a	Overall Maximum Concentration (µg/m³)	NAAQS (µg/m³)
PM ₁₀	Annual	1.25	25.1	26.35	50
a) Background concentration from the Meridian entry in Table 2 of DEQ's March 14, 2003 <i>Background Concentrations for Use in New Source Review Dispersion Modeling</i> memo.					

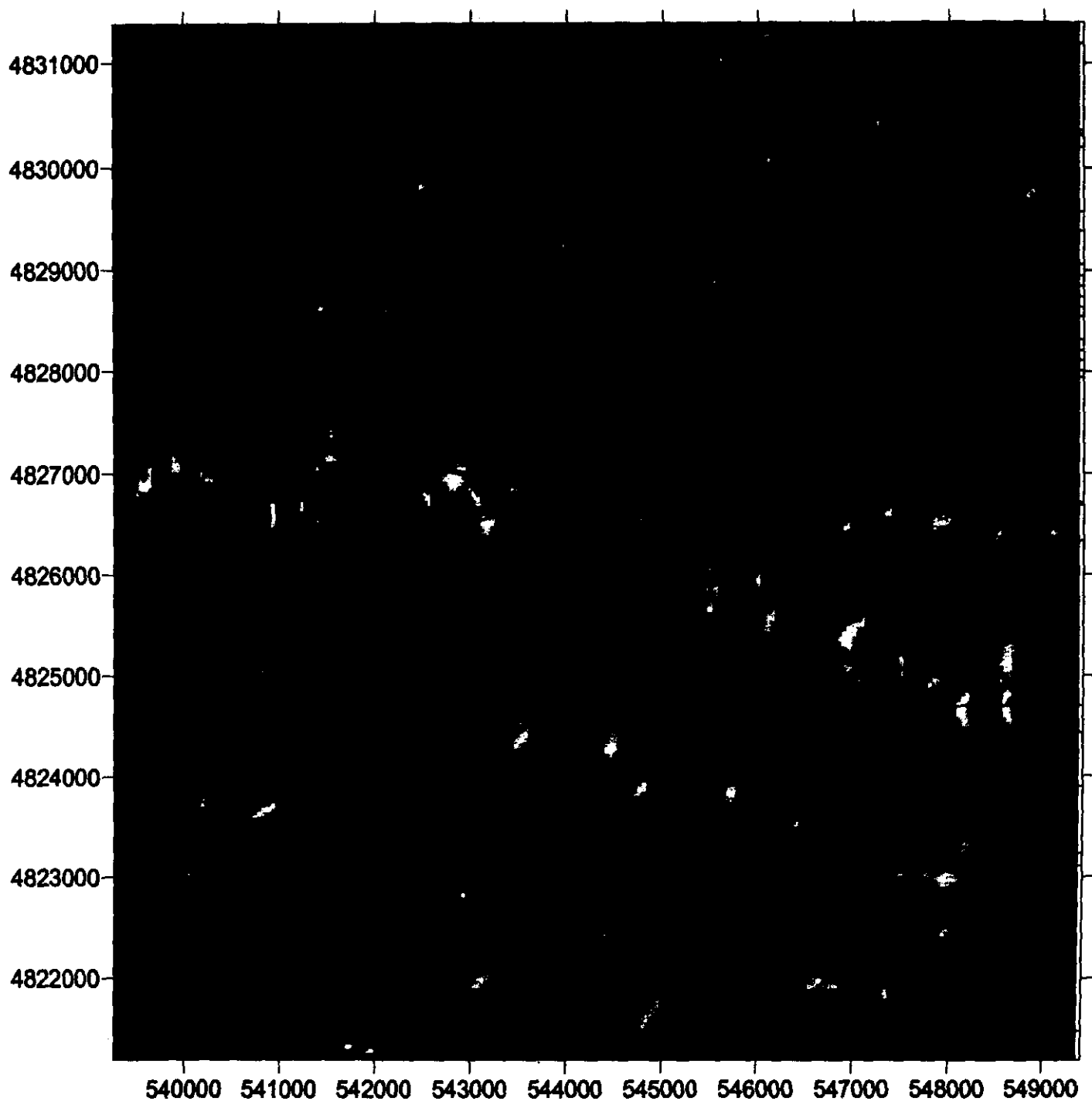


Figure 1. C. Wright Construction Company Facility Location and Receptor Network.

Appendix D

December 9, 2004 Application Addendum

(Document Titled: Changes in Fugitive Emissions Associated with Increase in Asphalt Production)



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DEPARTMENT OF ENVIRONMENTAL QUALITY
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December 9, 2004

CHRISTOPHER POOSER
Direct (208) 387-4289
wcpooser@stoel.com

Kevin Schilling
Idaho Department of Environmental Quality
1410 North Hilton Road
Boise, ID 83706

Re: Changes in Fugitive Emissions Associated with Increase in Asphalt Production

Dear Kevin:

IDEQ asked C. Wright Construction ("Wright") to evaluate possible increases in fugitive emissions that might occur in its Meridian operations as a result of increasing the annual production limit on the hot-mix asphalt plant from 50,000 t/yr to 80,000 t/yr and the annual PM₁₀ emission limit from 1.14 t/yr to 1.8 t/yr. The following discussion is based on our review of the emissions spreadsheet prepared by IDEQ in connection with Wright's initial Tier II permit and is supported by the attached spreadsheets prepared by Sean Williams at Geomatrix Consultants. The short answer is that fugitive emissions associated with vehicle traffic on the facility's roads, as well as ~~fugitive emissions associated with material handling activities, will actually decrease with respect to the facility's current PTE.~~

The facility's total fugitive emissions will decrease because the ~~Meridian pit is no longer able to produce aggregate ready for use in asphalt production.~~ Historically, Wright would mine this material, known as "plant mix," on-site, process it through the crusher, and haul it from the crusher/pit area to the storage pile near the HMA plant. The unpaved haul road between the pit and the stockpile is 0.3 miles each way. As displayed on the first "Traffic Unpaved Roads" line on IDEQ's emission spreadsheet, the facility's PTE for this portion of road was based on 12,960 round trips per year, for a total of 7,776 vehicle miles traveled on this section of unpaved road. Based on IDEQ's calculations, this traffic was estimated to generate 7,101.7 pounds of fugitive PM₁₀ per year.

Since plant mix is no longer available at the pit, this emission source and the associated emissions no longer contribute to Wright's ambient impacts. It is important to note that while Wright continues to mine, process, and transport raw material (not plant mix) at the Meridian facility, the road emissions associated with those activities are accounted for in the second "Traffic Unpaved Roads" line of IDEQ's emission spreadsheet. Similarly, the other "Traffic



Kevin Schilling
December 9, 2004
Page 2

Unpaved Roads" and "Traffic Paved Roads" entries account for the truck traffic associated with hauling 50,000 tons of finished HMA off the site.

Additionally, when Wright's pit was producing plant mix, the facility used a front-end loader to load the plant mix needed to produce 50,000 tons of asphalt into haul trucks to be transported from the crusher/pit to the stockpile. Because the Meridian pit is no longer producing plant mix, Wright does not generate the material handling emissions associated with loading the plant mix into haul trucks.

~~As a result, Wright has reduced the facility's emissions with respect to material handling and on-site hauling of plant mix.~~ At the same time, however, new fugitive emissions are associated with delivering plant mix produced off-site to Wright's facility. For the past year Wright has imported plant mix from off-site. As mentioned previously, Wright proposes to increase its asphalt production to 80,000 tons per year. Accordingly, Wright would import plant mix needed to produce 80,000 tons of asphalt for use at the HMA plant each year. The ambient impact of this activity is included in Geomatrix's analysis. ~~The analysis confirms that even with the delivery of plant mix produced off-site, the fugitive emissions from Wright will decrease with the proposed production volume.~~

The haul trucks delivering the material from off-site would enter the facility gate and travel 0.2 miles to the stockpile near the HMA plant. Half of this route is unpaved while the other half is paved. After dumping their loads at the stockpile, the trucks would turn around drive back down the road to the gate. Accordingly, each plant mix delivery truck would make a 0.4 mile round trip on the facility, half of which would be paved and half of which would be unpaved.

Each plant mix haul truck is capable of hauling 16 tons of material per trip. Based on this capacity, 5000 haul trucks will deliver plant mix to the Meridian facility per year, traveling a combined 1,000 miles on paved roads and 1,000 miles on unpaved roads.

In addition, because Wright proposes to increase the facility's HMA production to 80,000 tons per year, Wright will have to increase the number of HMA haul trucks visiting the facility per year. Each HMA haul truck is capable of hauling 24 tons of material, so Wright will need an additional 1,250 HMA haul trucks to accommodate the proposed 30,000 ton HMA increase. These trucks will follow the same route as the plant mix delivery trucks and accordingly will travel a combined 250 miles on unpaved roads and 250 miles on paved roads.



Kevin Schilling
December 9, 2004
Page 3

Using IDEQ's assumptions from the emission spreadsheet, the traffic associated with hauling plant mix onto the site, in addition to hauling an additional 30,000 tons of HMA away from the site, would generate 1,943.0 pounds of PM₁₀ per year. This emission rate is 5,158.7 pounds per year less than the emission rate associated with hauling plant mix from the pit to the stockpile.¹

Lastly, Wright employs a front-end loader at the HMA plant to move plant mix from the stockpile to the HMA plant. IDEQ's emission spreadsheet accounts for the emissions associated with handling 50,000 tons of plant mix at the HMA plant stockpile in the "FEL aggregate handling" line. Wright's proposal to increase the HMA plant's throughput to 80,000 tons per year correlates with an additional 30,000 tons of plant mix that the front-end loader must handle each year at the HMA plant.

However, as mentioned previously, the Meridian facility's pit no longer produces plant mix. Accordingly, Wright's front-end loader in the pit does not handle the 50,000 tons of plant mix per year that are currently used at the HMA plant. Under Wright's proposed production limit the HMA plant front-end loader would handle an additional 30,000 tons of material, however that would be completely offset due to the fact that the pit area front-end loader handles 50,000 fewer tons of plant mix due to the plant mix delivery trucks.

This should address IDEQ's concerns regarding fugitive emissions generated by increasing the asphalt production limit by 30,000 t/yr and the annual PM₁₀ emission limit by 0.66 t/yr. The requested modeling analysis on the asphalt plant will be submitted early next week. If you have any questions, please give me or Sean Williams a call.

Very truly yours,

Christopher Pooser
Attachments

cc: Tim Wright, C. Wright Construction, Inc.
Sean Williams, Geomatrix Consultants

¹ IDEQ's emission spreadsheet used road emission factors that have since been lowered. Our analysis of the new proposed road emissions used the old emission factors. Use of the old emission factors results in a higher emissions calculation for the new emissions and ensures an accurate comparison.

EXISTING RESUSPENDED ROAD DUST FROM PAVED ROADS

Emission Calculations

Paved Road Dust Emission Factor

$$\text{Emission Factor Paved (Btu/VMT)} = (1.0 \times 10^{-12}) \times (PM_{10}/3)^{0.75} \times (300 - P)/300$$

AP-42 Section 13.3.1, Paved Roads

0.016 = L, PM10 dust multiplier (Btu/VMT)

36 = L, road surface with loading (Btu/VMT)

27.5 = W, Average weight of entire fleet (tons)

90 = P, Mean annual number of days with measurable precipitation from a WSU-PHMS Station in Puget Sound, Creek, Washington for year 1999

EF_{Paved} = 2.864 Btu/VMT

Vehicle Activity on the Puget Sound Paved Roads

Vehicle	Average Weight (tons)	Average Speed (mph)	Days of Operation per Year	Number of One-Way Trips per Year	Total VMT per Year
Paved Road Emissions	27.5	15	200	60	12700.3

Puget Sound PM₁₀ Emissions

Emission Factor (Btu/VMT)	Actual Annual Emissions (Btu/Day)
2.864	38,244.6
PM ₁₀ Conversion	18.1
PM ₁₀ Conversion	6.8

The combined emission rate includes mitigation (80%) from watering and dust suppression activities, and weather related (rain) suppression.

PROPOSED RESUSPENDED ROAD DUST FROM PAVED ROADS

Emission Calculations

Paved Road Dust Emission Factor

$$\text{Emission Factor Paved (Btu/VMT)} = (1.0 \times 10^{-12}) \times (PM_{10}/3)^{0.75} \times (300 - P)/300$$

AP-42 Section 13.3.1, Paved Roads

0.016 = L, PM10 dust multiplier (Btu/VMT)

36 = L, road surface with loading (Btu/VMT)

27.5 = W, Average weight of entire fleet (tons)

90 = P, Mean annual number of days with measurable precipitation from a WSU-PHMS Station in Puget Sound, Creek, Washington for year 1999

EF_{Paved} = 2.208 Btu/VMT

Vehicle Activity on the Puget Sound Paved Roads

Vehicle	Average Weight (tons)	Average Speed (mph)	Days of Operation per Year	Number of One-Way Trips per Year	Total VMT per Year
Paved Road Emissions	27.5	15	200	60	12,700.3
PM ₁₀ Conversion	27.5	15	200	60	2,800
PM ₁₀ Conversion	27.5	15	200	60	250

Puget Sound PM₁₀ Emissions

Emission Factor (Btu/VMT)	Actual Annual Emissions (Btu/Day)
2.208	2,872.0
PM ₁₀ Conversion	1.4
PM ₁₀ Conversion	0.4

The combined emission rate includes mitigation (80%) from watering and dust suppression activities, and weather related (rain) suppression.

New paved road emissions associated with Plant Mtr delivery (60,000 tons) and trucking 30,000 tons of HMA.

Pugh's PIR - Emissions

Emission Factor		Actual Annual Emissions
(lb/MMBtu)		(MMBtu)
2.000	1.0	

1977.48 New improved road emissions, associated with hauling 80,000 tons of plant mix and 20,000 more tons of HMA

The corrected emission rate includes mitigation (80%) from watering and dust suppression activities, and weather related (50%) suppression.

Appendix E

December 21, 2004 Application Addendum

**(Document Titled: C. Wright Construction, Inc. Tier II Operating Permit No T2-000033 –
Additional Modeling Analysis of Proposed Production Increase for Hot Mix Asphalt
Plant)**



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December 17, 2004

CHRISTOPHER POOSER
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VIA HAND DELIVERY

Kevin Schilling
Idaho Department of Environmental Quality
1410 North Hilton Road
Boise, ID 83706

Re: C. Wright Construction, Inc. Tier II Operating Permit No. T2-000033 – Additional Modeling Analysis of Proposed Production Increase for Hot Mix Asphalt Plant

Dear Kevin:

C. Wright Construction ("Wright") has requested the revision of its Tier II operating permit to increase the annual production limit and annual PM₁₀ emission limit on its hot mix asphalt plant. As requested by IDEQ, attached is a dispersion modeling analysis prepared by Geomatrix Consultants regarding the increase in annual emission rates associated with the proposed production limit. According to Geomatrix's analysis, emission increases associated with the proposed production increase will not cause or significantly contribute to a violation of the NAAQS.

Wright has also provided IDEQ with two other emissions analyses regarding the proposed production increase. The first was submitted to Martin Bauer on October 27, 2004 and demonstrated that the increased production limit and annual PM₁₀ emission limit will not cause a violation of the annual PM₁₀ NAAQS. The second analysis was submitted to you on December 9, 2004 and demonstrated that fugitive emissions will not increase due to the proposed production limit. Both analyses were prepared by Geomatrix Consultants, formerly MFG, Inc.

I believe Wright has now produced the information requested by IDEQ. If you have any questions, please contact me or Sean Williams at Geomatrix.

Very truly yours,

Christopher Pooser
Enclosure

cc: Tim Wright, C. Wright Construction
Sean Williams, Geomatrix Consultants
Marty Bauer, IDEQ

MEMORANDUM

TO: Tim Wright
C. Wright Construction

DATE: December 17, 2004

FROM: Sean Williams

CC: W. Christopher Pooser
Stoel Rives

SUBJECT: Modeling Analysis of the Meridian Facility's Proposed Production Increase

As we have discussed, C. Wright Construction Company (Wright) proposes to increase the Meridian facility's annual hot mix asphalt (HMA) production from 50,000 tons to 80,000 tons. This increase in annual HMA production will cause a corresponding increase in the facility's annual air pollutant emission rates. To demonstrate that the increase in emissions attributable to the proposed production rate increase would not cause or significantly contribute to a violation of any ambient air quality standard, Geomatrix Consultants (Geomatrix) conducted a dispersion modeling analysis to examine the proposed emissions increases.

It is our understanding that due to physical limitations the Meridian facility's hourly HMA production rate (106 tons) cannot increase, so the increased annual production would be realized by operating additional hours per year. Accordingly, the facility's annual emission rates would change as a result of the proposed production increase, however the short-term emission rates would not. Therefore, our modeling analysis examined only those pollutants, both criteria and toxic air pollutants, with annual average ambient criteria.

With the exception of the pollutants examined and emission rates, this project-specific modeling analysis is identical to the modeling analysis described in MFG's October 26, 2004 memo to Wright¹. Unlike MFG's previous modeling study, the current analysis examined all of the criteria pollutants with annual average standards (PM₁₀, NO_x, SO₂) as well as the toxic air pollutants (TAPs) that: 1) are emitted by natural gas-fired, drum mix HMA plants, 2) would have an emission rate greater than the Screening Emission Limits established in IDAPA 58.01.01.586 (when considering only those emissions associated with the proposed production increase), and 3) have an annual average metric. Table 1 presents the emission rates associated with the proposed production increase for each of

¹ The MFG staff members who were associated with this project are now employed by Geomatrix Consultants.

the pollutants examined in the modeling study. Geomatrix based these emission rates on emission factors from AP-42 Section 11.1 (March 2004).

As displayed in Table 2, all of the predicted criteria pollutant concentrations attributable to the proposed production rate increase are substantially below the applicable Significant Contribution Levels (SCLs). As established by EPA and Idaho DEQ guidance, concentrations that are less than the SCLs are insignificant and facilities are not required to complete a facility-wide National Ambient Air Quality Standard compliance demonstration for these pollutants. Therefore, Geomatrix did not conduct a facility-wide dispersion modeling analysis for any of the criteria pollutants examined in this project-specific analysis.

It is important to note that this project-specific dispersion modeling analysis did not include the fugitive PM₁₀ emissions attributable to the facility's roads and material handling activities. As described in Christopher Pooser's December 9, 2004 letter to Kevin Schilling at Idaho DEQ, the facility's current method of operation and the proposed project result in an overall reduction in the facility's fugitive PM₁₀ emissions. Accordingly, we did not include these emissions in our analysis.

Table 2 also presents the results of the TAP dispersion modeling analysis. All of the predicted TAP concentrations attributable to the proposed production rate increase are below the applicable Acceptable Ambient Concentrations for Carcinogens (AACCs).

As demonstrated by the dispersion modeling results presented in Table 2, increasing the Meridian facility's annual HMA production from 50,000 tons to 80,000 tons will not cause or significantly contribute to a violation of any ambient air quality standards.

Table 1. Emission Rates Associated with the Meridian Facility's Proposed Production Rate Increase.

Pollutant	Emission Factor (lb/ton of HMA production)	Emissions Associated with Existing Production Limit (pounds/year)	Emissions Associated with Proposed Production Limit (pounds/year)	Emissions Increase ^a (pounds/year)
PM ₁₀	0.0454 ^b	2,270.0	3,632.0	1,362.0
NOx	0.026 ^c	1,300.0	2,080.0	780.0
SO ₂	0.0034 ^c	170.0	272.0	102.0
Arsenic	5.60E-07 ^d	0.028	0.045	0.017
Benzene	0.00039 ^e	19.50	31.20	11.70
Chromium VI	4.50E-07 ^d	0.023	0.036	0.014
Formaldehyde	0.0031 ^e	155.0	248.0	93.0
Nickel	6.30E-05 ^d	3.15	5.04	1.89
Polycyclic Aromatic Hydrocarbons (PAHs)	5.48E-07 ^f	0.027	0.044	0.016

a – these emission rates were included in the dispersion modeling analysis.

b – PM₁₀ emission factor is the sum of filterable and condensable PM emission factors for a dryer with a wet scrubber (Table 11.1-3).

c – emission factors for Natural gas-fired dryer (Table 11.1-7).

d – emission factors from Natural gas-fired dryer (Table 11.1-12).

e – emission factors from Natural gas-fired dryer with a fabric filter (Table 11.1-10). The Meridian facility employs a wet scrubber, however AP-42 does not list organic pollutant emission factors for a source with this type of control device. Due to the nature of organic pollutants, a wet scrubber would control their emissions more effectively than a fabric filter. Accordingly, these emission factors likely overestimate the facility's organic pollutant emission rates.

f – emission factors from Natural gas-fired dryer with a fabric filter (Table 11.1-10). Per IDAPA 58.01.01.586, this emission factor is the sum of emission factors for: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene.

Table 2. Dispersion Modeling Analysis Results.			
Pollutant	Maximum Predicted Annual Average Concentration ($\mu\text{g}/\text{m}^3$)	Significant Contribution Level ($\mu\text{g}/\text{m}^3$)	Acceptable Ambient Concentration for Carcinogens ($\mu\text{g}/\text{m}^3$)
PM ₁₀	0.474	1.0	NA
NOx	0.271	1.0	NA
SO ₂	0.0354	1.0	NA
Arsenic	1.00E-05	NA	2.30E-04
Benzene	4.11E-03	NA	1.20E-01
Chromium VI	<1.00E-05	NA	8.30E-05
Formaldehyde	3.24E-02	NA	7.70E-02
Nickel	6.00E-04	NA	4.20E-03
PAHs	1.00E-05	NA	3.00E-04

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Appendix F

***DEQ Modeling Memorandum
January 12, 2005***

MEMORANDUM

DATE: January 12, 2005

TO: Bill Rogers, Regional Permit Program Coordinator, Air Quality Division

FROM: Kevin Schilling, Air Modeling Coordinator – Stationary Sources, Air Quality Division

PROJECT NUMBER: T2-030055

SUBJECT: Modeling review for C. Wright Construction, Inc., proposed annual production increase modification to Tier II operating permit for their hot mix asphalt facility in Meridian, Idaho.

1.0 Summary

C. Wright Construction (C. Wright) proposed to increase allowable annual throughput at their hot mix asphalt facility operating in Meridian, Idaho. Air quality analyses involving atmospheric dispersion modeling of annual emissions increases associated with the proposed modification were submitted in support of a revised Tier II operating permit. The analyses were submitted to demonstrate that modification of the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). Geomatrix Consultants (Geomatrix), C. Wright's consultant, conducted the ambient air quality analyses.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations from emissions associated with the proposed modification were below applicable air quality standards. Impacts of Toxic Air Pollutants (TAPs) were all below allowable increments of IDAPA 58.01.01.585 and 586. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS/RESULTS FROM MODELING ANALYSES	
Assumption/Result	Explanation/Consideration
Neither fugitive nor point source daily emissions will increase as a result of the proposed increase in throughput.	The application proposes that only annual throughput will increase. Daily allowable throughput limits must not be increased.
The facility will no longer mine "plant mix" on-site.	Because of this reduction, the increase in allowable throughput will result in a net decrease in fugitive particulate emissions.
Emission increases in criteria pollutants from point sources are below DEQ modeling thresholds.	Increases in PM ₁₀ , NO _x , and SO ₂ were all below 1.0 ton/year.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The C. Wright facility is located in Ada County, designated as attainment or unclassifiable area for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), lead (Pb), and ozone (O₃). The area is designated as a maintenance area for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed modification exceed the “significant contribution” levels (SCLs) of IDAPA 58.01.01.006.93, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS).

2.1.3 Toxic Air Pollutant Impact Analysis

Toxic Air Pollutant (TAP) requirements for PTCs are specified in IDAPA 58.01.01.210. If the net emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of IDAPA 58.01.01.585 and IDAPA 58.01.01.586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated.

2.2 Background Concentrations

Background concentrations were not considered in these analyses because all impacts of criteria pollutants were well below SCLs.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 2 provides a summary of the modeling parameters used for Geomatrix's modeling analyses.

Table 2. MODELING PARAMETERS		
Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3	Version 02035
Meteorological data	Boise Surface and Upper Air Data	1987
Model options	Regulatory Default	
Land use	Rural	Population density in area is not sufficient for urban classification and there is a large fraction of unimproved land within three kilometers
Terrain	Simple and Complex	Elevation data from digital elevation model (DEM) files
Building downwash	Not considered	There are no buildings in the immediate vicinity of the source.
Receptor grid	Grid 1	25-meter spacing along boundary and out to 100 meters
	Grid 2	50-meter spacing in a 2 X 2 kilometer grid centered on the source.
	Grid 3	250-meter spacing in a 10 X 10 kilometer grid centered on the source.
Facility location (UTM)^a	Easting	544 kilometers
	Northing	4,826 kilometers

^a Universal Transverse Mercator

3.1.1 Modeling Approach and Review

The increase in emissions from the asphalt plant stack, associated with the increased annual throughput, were modeled to evaluate compliance with Permit to Construct (PTC) regulations. Fugitive emissions from material handling were not included in the analyses. C. Wright claims that facility-wide fugitive particulate emissions will actually decrease because the facility will no longer mine "plant mix" at the site.

Because of the relatively small magnitude of emissions associated with proposed increased production at the C. Wright facility, DEQ did not conduct an independent assessment of the analyses by rerunning the models.

3.1.2 Modeling protocol

A modeling protocol was not submitted to DEQ with the application.

3.1.3 Model Selection

The most recent version of ISCST3 was used by Geomatrix for the analyses. DEQ determined use of this model is appropriate, especially since concentrations within building recirculation cavities as caused by downwash is not a consideration for these analyses.

3.1.4 Land Use Classification

Well over 50 percent of the landuse of the surrounding area is rural. Therefore, rural dispersion coefficients were used in the modeling analyses.

3.1.5 Meteorological Data

Geomatrix used surface and upper air meteorological data collected from Boise airport by the National Weather Service and available from EPA. Only data from 1987 were used in the analyses, rather than the five years from 1987 through 1991. Geomatrix claimed that only 1987 data were used in their analyses because that was the approach used by DEQ for the previous modeling analyses conducted in 2002¹. Considering the magnitude of the emission increase and modeled impact, DEQ considered the use of 1987 meteorological data for these analyses as acceptable.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically-low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. Modeling was conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.6 Simple and Complex Terrain

The modeling analyses submitted by Geomatrix considered elevated terrain. Elevations of receptors, buildings, and emissions sources were calculated from United States Geological Survey (USGS) 7.5 minute Digital Elevation Model (DEM) files.

3.1.7 Facility Layout and Ambient Air Boundary

Geomatrix indicated in the application that the facility layout and ambient air boundary used in their analyses were based on the air impact assessment performed for the facility in 2002. Since building downwash was not a consideration for the analyses, the specific locations of equipment was not critical to results.

¹ MFG 2004: Memo from Sean Williams of MFG to Tim Wright of C. Wright Construction. Modeling Analysis associated with Increased Production at the Meridian Facility. October 26, 2004 (Note: Sean Williams and the air quality consulting group at MFG are now with Geomatrix).

3.1.8 Building Downwash

There were no buildings identified in the immediate vicinity of the emission source. Although the equipment itself may induce some downwash, the magnitude of emissions and modeled impacts did not warrant additional consideration of potential downwash.

3.1.9 Receptor Network

Geomatrix used 25-meter receptor spacing along the facility ambient air boundary, 50-meter spacing for a 2.0- by 2.0-kilometer grid centered on the emission source, and 250-meter spacing for a 10- by 10-kilometer grid centered on the emission source. DEQ determined this receptor network was adequate to reasonably resolve the maximum modeled concentrations.

3.2 Emission Rates

Geomatrix modeled the emission increase associated with an annual production increase from 50,000 ton/yr to 80,000 ton/yr. The hourly modeled value was based on operating 12 hr/day, 365 day/yr. The dispersion modeling was conducted by modeling the emissions between the hours of 6 am and 6 pm, which is typical of site operations. Table 3 provides criteria pollutant and TAPs emissions for the hot mix asphalt plant.

Table 3. POLLUTANT EMISSIONS RATES USED FOR MODELING									
Location (UTM) ^a	Rate Used for Modeling (lb/hr) ^b								
	PM ₁₀ ^c	NOx ^d	SO ₂ ^e	As ^f	Ben. ^g	Cr6 ^h	For. ⁱ	Ni ^j	PAH ^k
E544286 N4826319	0.31	0.178	0.023	3.9E-6	2.7E-3	3.2E-6	0.021	4.3E-4	3.7E-6

^a Universal Transverse Mercator

^b Pounds per hour

^c Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^d Oxides of nitrogen

^e Sulfur dioxide

^f Arsenic

^g Benzene

^h Chromium VI

ⁱ Formaldehyde

^j Nickel

^k Poly Aromatic Hydrocarbons

3.3 Emission Release Parameters

Table 4 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity. These parameters were updated by the facility from the 2002 modeling analyses.

Table 4. EMISSION STACK PARAMETERS					
Release Point	Source Type	Stack Height (m) ^a	Modeled Diameter (m)	Stack Gas Temp. (K) ^b	Stack Gas Flow Velocity (m/sec) ^c
Hot Mix Plant Stack (STACK1)	Point	3.66	0.73	341	15.5

a. Meters

b. Kelvin

c. Meters per second

3.4 Results

3.4.1 Significant Impact Analysis

This section describes dispersion modeling results for PM₁₀, NO_x, and SO₂. Table 5 summarizes the results from Geomatrix's analyses. All modeled values are below SCLs; therefore, modeling of facility-wide emissions are not required.

Table 5. RESULTS OF SIGNIFICANT IMPACT ANALYSES				
Pollutant	Averaging Period	Maximum Modeled Concentration ^a (µg/m ³) ^b	Significant Contribution Level (µg/m ³)	Facility-Wide Modeling Required
PM ₁₀ ^c	Annual	0.47	1.0	No
SO ₂ ^d	Annual	0.035	1.0	No
NO ₂ ^e	Annual	0.27	1.0	No

a. Values are modeling results obtained by Geomatrix.

b. Micrograms per cubic meter

c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

d. Sulfur dioxide

e. Nitrogen dioxide

3.4.1 TAP Analyses

Table 6 provides results from the modeling of TAPs where emission increases exceeded the Els of IDAPA 58.01.01.585 and 586. All modeled concentrations of TAPs are well below the applicable AACs and AACCs.

Table 6. RESULTS OF ANNUAL TAP ANALYSES			
TAP	Maximum Modeled Concentration (µg/m ³) ^a	AACC (µg/m ³)	Percent of AACC
Arsenic	1.00E-5	2.30E-4	4
Benzene	4.11E-3	1.20E-1	3
Chromium VI	<1.00E-5	8.30E-5	<12
Formaldehyde	3.24E-2	7.70E-2	42
Nickel	6.00E-4	4.20E-3	14
PAHs	1.00E-5	3.00E-4	3

a. Micrograms per cubic meter

4.0 Conclusions

Dispersion modeling of the proposed modification, conducted by the applicant, demonstrated to the satisfaction of DEQ that the proposed modification will not cause or significantly contribute to a violation of any ambient air quality standard.